3. **(Previously presented)** An encapsulation vesicle as recited in claim 1, wherein said matrix comprises silica and synthetic polymer.

4. **(Currently amended)** An encapsulation vesicle as recited in claim 1, wherein said fluorescent ~~doner~~ molecule is an organo-metallic complex, and wherein the matrix surface is modified with carboxyl groups so that the organo-metallic complex can be covalently attached to the matrix surface.

5. **(Currently amended)** An encapsulation vesicle as recited in claim 1, wherein said fluorescent ~~doner~~ molecule is an organo-metallic complex, and wherein the matrix surface is modified with amino groups so that the organo-metallic complex can be covalently attached to the matrix surface.

6. **(Canceled)**

7. **(Canceled)**

8. **(Currently amended)** An encapsulation vesicle as recited in claim 1, wherein said fluorescent ~~doner~~ molecule is an organo-metallic complex.

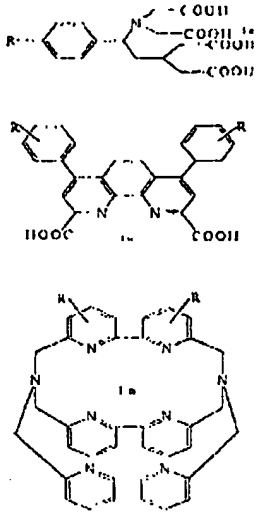
9. **(Canceled)**

10. **(Previously presented)** An encapsulation vesicle as recited in claim 8, wherein said organo-metallic complex is a ruthenium tris diphenyl phenanthroline complex.

11. **(Previously presented)** An encapsulation vesicle as recited in claim 8, wherein said organo-metallic complex has an emission maximum at about 650 nm.

12. **(Canc led)**

13. **(Previously Presented)** An encapsulation vesicle as recited in claim 8, wherein said fluorescent donor molecule is selected from the group consisting of:



where Ln is selected from the group consisting of Eu, Tb, Sm, and Dy; and R represents H or a functionality capable of covalently linking to the surface of said matrix.

14. **(Currently amended)** An encapsulation vesicle as recited in claim 8, wherein said fluorescent ~~donor~~ molecule has a fluorescence lifetime greater than 100 nanoseconds and is susceptible to collisional quenching by oxygen.

15. **(Previously presented)** An encapsulation vesicle as recited in claim 2, wherein said protection layer comprises a material that is translucent to said fluorescence.

16. **(Previously presented)** An encapsulation vesicle as recited in claim 2, wherein said protection layer comprises a material that is transparent to said fluorescence.

17. **(Previously presented)** An encapsulation vesicle as recited in claim 2,

wherein said protection layer comprises a sol-gel material.

18. **(Original)** An encapsulation vesicle as recited in claim 2, wherein said protection layer is modified with hydrophilic functionalities selected from the group consisting of hydroxyl, carboxyl and protonated amines.

19. **(Original)** An encapsulation vesicle as recited in claim 2 that was formed by suspension polymerization.

20. **(Currently amended)** An encapsulation vesicle as recited in claim 37, wherein said ligand comprises an acceptor molecule that is capable of absorbing fluorescence that has been emitted from said fluorescent ~~donor~~ molecule.

21. **(Previously presented)** An encapsulation vesicle as recited in claim 1 for use in a fluorescence energy transfer immunoassay.

22. **(Canceled)**

23. **(Currently amended)** An encapsulation vesicle as recited in claim 20, wherein an absorption band of said acceptor molecule overlaps with an emission band of said fluorescent donor molecule.

24. **(Previously presented)** An encapsulation vesicle as recited in claim 20, wherein said acceptor molecule is selected from the group consisting of fluorescein, Cy5 and allophycocyanin.

25. **(Previously presented)** An encapsulation vesicle as recited in claim 37, wherein said ligand is an antibody.

26. **(Previously pr sented)** An encapsulation vesicle as recited in claim 21, wherein said fluorescence energy transfer immunoassay is a sandwich assay.

27. **(Previously presented)** An encapsulation vesicle as recited in claim 37, wherein said ligand is selected from the group consisting of proteins, DNA, RNA, polypeptides, aptamers and receptor molecules.

28. **(Canceled)**

29. **(Canceled)**

30. **(Canceled)**

31. **(Canceled)**

32. **(Previously presented)** An encapsulation vesicle as recited in claim 21, wherein said fluorescence energy transfer immunoassay is a competitive binding assay.

33. **(Previously presented)** An encapsulation vesicle as recited in claim 1 for use in a DNA or RNA fluorescence energy transfer hybridization assay.

34. **(Previously presented)** An encapsulation vesicle as recited in claim 1 for use in a fluorescence energy transfer binding assay between a ligand and a receptor.

35. **(Previously presented)** An encapsulation vesicle as recited in claim 34 for use in a fluorescence energy transfer binding assay between an aptamer and a protein.

36. **(Currently Amended)** An encapsulation vesicle as recited in claim 1, wherein said fluorescent ~~donor~~ molecule is selected from the group consisting of cyanines, oxazines, thiazines, porphyrins, phthalocyanines, fluorescent infrared-emitting polynuclear aromoatic hydrocarbons, phycobiliproteins,

squaraines and organo-metallic complexes.

37. **(Previously presented)** An encapsulation vesicle as recited in claim 1 further comprising a ligand attached to said protection layer.

38. **(Previously presented)** An encapsulation vesicle as recited in claim 37, wherein said ligand is an antigen.

39. **(Previously presented)** An encapsulation vesicle as recited in claim 2, wherein said protection layer comprises silica and synthetic polymer.

40. **(Previously presented)** An encapsulation vesicle as recited in claim 20, wherein said acceptor molecule is selected from the group consisting of Fast green and Light green SF yellowish.

41. **(Previously presented)** An encapsulation vesicle as recited in claim 20, wherein said acceptor molecule is selected from the group consisting of cyanines, oxazines, thiazines, porphyrins, phthalocyanines, fluorescent infrared-emitting polynuclear aromatic hydrocarbons, phycobiliproteins, squaraines, organo-metallic complexes, and azo dyes.

42. **(Currently amended)** An encapsulation vesicle as recited in claim 1 further comprising an acceptor molecule attached to said protection layer, wherein said acceptor molecule is capable of absorbing fluorescence that has been emitted from said fluorescent ~~donor~~ molecule.

43. **(Previously presented)** An encapsulation vesicle as recited in claim 42, wherein said acceptor molecule is selected from the group consisting of Fast green and Light green SF yellowish.

44. **(Previously present d)** An encapsulation vesicle as recited in claim 42, wherein said acceptor molecule is selected from the group consisting of

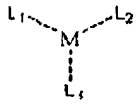
fluorescein, Cy5 and allophycocyanin.

45. **(Previously presented)** An encapsulation vesicle as recited in claim 42, wherein said acceptor molecule is selected from the group consisting of cyanines, oxazines, thiazines, porphyrins, phthalocyanines, fluorescent infrared-emitting polynuclear aromatic hydrocarbons, phycobiliproteins, squaraines, organo-metallic complexes, and azo dyes.

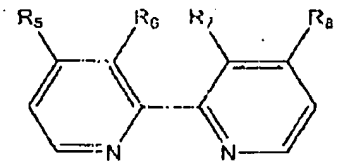
46. **(Currently amended)** An encapsulation vesicle as recited in claim 42, wherein an absorption band of said acceptor molecule overlaps with an emission band of said fluorescent ~~donor~~ molecule.

47. **(Currently amended)** An encapsulation vesicle as recited in claim 1, wherein said ~~fluorescence~~ fluorescent molecule is susceptible to collisional quenching by oxygen and said protection layer reduces the diffusion of oxygen into said surface coating.

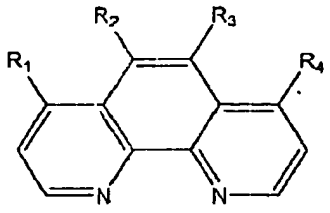
48. **(Currently Amended)** An encapsulation vesicle as recited in claim 8, wherein said fluorescent ~~donor~~ molecule is:



where M is selected from the group consisting of Ru, Os and Re; and L_1-L_3 are each independently selected from the group consisting of:

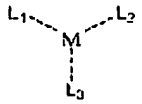


and

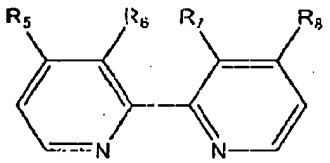


where R_1-R_8 are each independently selected from the group consisting of H, alkyl and aryl.

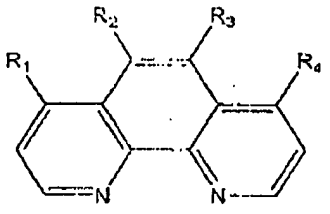
49. **(Currently Amended)** An encapsulation vesicle as recited in claim 8, wherein said fluorescent ~~donor~~ molecule is:



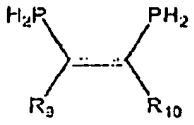
where M is Os;
L_1 is:



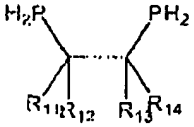
; or



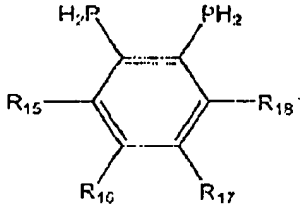
; and L_2 and L_3 are independently selected from the group consisting of:



;



; and



where R_1-R_{18} are each independently selected from the group consisting of H, alkyl, and aryl.